STCG TANK SUBGROUP MEETING

April 9, 1997

Welcome/Introductions (Cathy Louie)

Cathy welcomed the group and introduced Billie Mauss to discuss the Tanks Focus Area (TFA) and the Community Leaders Network (CLN) (see below).

Cathy is having an ongoing conversation with the DNFSB regarding Hanford's tank technology needs and how they're integrated into the TWRS Program.

TWRS received a response from TFA on how they are responding to our technology needs package. Cathy is having great interactions with TFA to help determine their budget priorities. User commitment (e.g., Site priority, willingness to co-fund) carried a lot of weight. Billie has an action item to provide the TFA prioritization criteria to the STCG Tank Subgroup. Cathy will produce a table like the one Ken Gasper developed last year showing how each need was addressed. This is good timing since TWRS is getting into the details of their Multi-Year Program Plan now. TFA's response to our tank technology needs will be discussed at the next Subgroup meeting.

Tanks Focus Area and Community Leaders Network (Billie Mauss)

TFA is having a retreat here in Richland with their stakeholders from the CLN Tanks Subgroup and the Hanford STCG Tanks Subgroup on May 15-16. Billie distributed a list of five issues and associated questions to be addressed:

1. STCG-CLN Interaction (Cathy Louie/Jim Cochran)
2. TFA Stakeholder Involvement Plan (Todd Peterson/Betsy McBride)
3. TFA Contingency Planning (Marilyn Quadrel/Nancy Uziemblo)
4. Waste Acceptance Criteria (Neil Brown, Rob Gilbert/P.K. Smith)
5. Hanford Tanks Initiative (HTI) and Tank Closure (Ed Fredenburg/Tom Tebb)

If anyone has additional questions, please send them to Billie. The agenda for the retreat will be distributed as soon as it is finalized.

TDI Proposals (Paul Scott)

Paul presented the first cut at the set of TDI proposals developed for the STCG Tank Subgroup's review. The purposes of this review are to: 1) allow the authors to review and assess the strengths of their proposals, 2) provide the Subgroup with an opportunity to review and screen the proposals, and 3) secure user understanding and support early on (since most proposals were written by technologists). The PHMC will scrub the costs and technical details later. At this

time, they are looking for major issues, concerns, or show-stoppers. There will be an opportunity for further input later during the development of deployment plans for any proposals that are funded.

Paul summarized each proposal and the facilitator captured any issues or concerns on flipcharts for resolution by the authors prior to submission of the proposals.

EMSP Proposal (John LaFemina and Lucia Liljegren)

John started out by telling the Subgroup that no other site sent science needs to the EMSP when we did. Carol Henry, the Office Director, instructed the reviewers to use the Hanford science needs to screen the proposals they received.

Then John introduced the EMSP proposal "Models to Predict Flow Behavior of Radioactive Particulate Wastes", which is part of the Virtual Center for Multi-Phase Dynamics. This proposal involves multiple national laboratories and universities with capabilities in fluid dynamics. He raised the question of whether an STCG letter on endorsement would have an impact on their getting funded.

Lucia Liljegren, the principal investigator and proposal author, provided additional details about the proposal and answered questions posed by the Subgroup.

Bob Cook stated that he can't see that a model will be of much use to us, since TWRS already knows how to pump slurries from Site experience. There are more important science needs to be addressed than this one. He suggested an approach where you learn as you go by starting with a lot of excess water for sluicing.

Dirk Dunning agreed that TWRS should use an engineering approach rather than a science approach. Lucia answered that engineering approaches won't work here. Dirk also stated that the Subgroup should not vote to endorse the proposal because it is too complex and there are too many parameters to determine before you can develop a good model.

Cathy Louie warned that we must be very careful because Hanford's tank wastes are inhomogeneous. She stated that the Subgroup should not endorse the proposal at this point, and she asked Lucia and John to alter/expand it to include actual waste data to account for the inhomogeneities to ensure model validity.

Paul Danielson said that he could not vote on this proposal yet since he had not made up his mind.

The consensus was that the Tank Subgroup does not want to endorse science proposals, but does want to offer technical input offline. Gary Ballew had a dissenting opinion regarding Subgroup endorsement of science proposals.

Risk-Based Approach to Technology Investments (Tom Brouns, Marilyn Quadrel, and Lynn Franklin)

Tom Brouns provided some background information on TFA's project to develop a risk-based approach to technology investments. The objective is to determine how to make strategic investments with higher risks but bigger payoffs for the TWRS Program. Marilyn Quadrel's team has developed a decision-support methodology to identify what these high-impact investments should be. The investments can be inside or outside the baseline, but they should be able to reduce cost, risk, or uncertainty, or improve schedule. TFA is currently evaluating the approach and deciding if they should proceed.

Cathy Louie stated that DOE should always be looking at strategic options, and that the Subgroup can help identify appropriate assumptions to be used for analytical studies. She feels that this is part of a balanced management approach.

Dirk Dunning and Bob Cook strongly urged TFA not to focus on reducing costs. They believe that ES&H risks should be the real drivers, not costs. It is unacceptable to look at alternatives that increase risk, and all low-cost cases would increase risk. TFA should focus only on ES&H risks, even though it's difficult to do so. They should only look at costs for cases with lower risks than the baseline. For example, Bob suggested a scenario with no LLW stream, just a HLW stream to be minimized.

Tom stated that the users want TFA to focus only on high-priority baseline technology needs, and this study does not support any particular technology need. It fits under the Systems Engineering efforts to evaluate alternatives. The analytical methodology provides quantification of how a change in one area of the TWRS Program can impact other areas of the program. If the Subgroup wants TFA to fund this study at a higher level, then they should include it as a technology need next year.

Marilyn Quadrel discussed the study premises, approach, and initial assumptions/biases. Uncertainties among the parameters may be swamped by our inability to measure risks. Suzanne Dahl (Ecology) asked if TFA can afford to do this study right. She said that $11 million was spent on the TWRS EIS, and it was not done well. Dirk added that TFA can't afford to get all the data they need, so they must do a bounding approach. Marilyn agreed that a value-of-information (decision analysis) approach could be used to see how much characterization is needed to get good risk information.

Stakeholders want to know that DOE is protecting them as best they can, which is mainly important when comparing different endstates. TFA should try to obtain contingency scenarios from the regulators and stakeholders.

Lynn Franklin made a brief presentation of cost analysis results. He emphasized that traditional analysis identifies major contributors to cost, risk, etc. For example, the HLW disposal function is expected to be the single largest contributor to the overall cost of the TWRS Program. Also, the HLW disposal function has the largest range of possible values based on probabilistic estimates of performance. However, the systems benefit analysis indicates that the parameter

that contributes most to the uncertainty in the cost of the TWRS Program is the fraction of insoluble solids in the enhanced sludge washing function. Additionally, three of the top six contributors to the potential variability in total system cost are associated with functional areas other than HLW disposal. The message is that the greatest opportunity for influencing the eventual cost of the TWRS Program occurs in those functional areas that contribute the greatest to the variability in total system cost. Furthermore, the science and technology needs that should be pursued are the ones that address those sensitive parameters and impact their relationships within the full set of system interactions.

Action Items

- Send agenda for TFA/CLN/STCG retreat to Subgroup (Billie Mauss/Linda Fassbender).
- Send TFA prioritization criteria to Subgroup (Billie Mauss/Linda Fassbender).
- Add Billie Mauss, Jeff Frey, and Lance Mamiya to distribution list for Subgroup meetings and minutes (Linda Fassbender). This has been done.
- Send a copy of the April 7th engineering study to Dirk Dunning (Cathy Louie).

Meeting Attendees

Tom Anderson (FDH/Technology Management)
Gary Ballew (Pacific Rim Enterprise Center)
Tom Brouns (PNNL/TFA)
Bob Cook (Yakama Indian Nation)
Suzanne Dahl (Ecology)
Paul Danielson (Nez Perce Tribe)
Linda Fassbender (PNNL)
Lynn Franklin (PNNL)
John LaFemina (PNNL/TFA)
Lucia Liljegren (PNNL)
Cathy Louie (DOE-RL/TWRS)
Billie Mauss (DOE-RL/TFA)
Vince Panesko (Pacific Rim Enterprise Center)
Marilyn Quadrel (PNNL)
Paul Scott (FDH/Technology Management)
Harold Stafford Jr. (DOE-RL)
Alex Stone (Ecology)
Nancy Uziemblo (Ecology)

Next Meeting

The next Tank Subgroup meeting will be held on May 14th from 1:00-5:00 p.m. in the ISB-1 White Bluffs Room. The agenda will include:

- TFA Response to Tank Needs
- K-Basin Sludge and Fuel Technology Options
- Improvements to Technology Needs Generation Process
- AEA Fluidics Technology